

## SCIENTIFIC APPRAISAL

on the competition for the occupation of the academic position "Professor" at the Institute of Organic Chemistry with the Center of Phytochemistry (IOCCP) at BAS in the field of chemical sciences, code 4.2.

scientific specialty "Bioorganic chemistry, chemistry of natural and physiologically active compounds" for the needs of the laboratory "Chemistry of natural products" declared in the State Gazette, issue 43 / 31.05.2019

**Candidate (sole):** Assoc. Prof. Dr. Antoaneta Borisova Trendafilova-Savkova

**Scientific appraisal:** Prof. Dr. Vanya Bogdanova Kurteva, IOCCP-BAS; Member of the Scientific Jury, appointed by Order RD-09-188 from 26.07.2019

### 1. General presentation of the procedure and the applicant

Documents and materials provided by Assoc. Prof. Antoaneta Trendafilova comply with the requirements for occupying the academic position "Professor" of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), the Regulations for the application of the ADASRB, the Regulations for the conditions and the procedure for acquiring academic degrees and for taking Academic positions at BAS and the Regulations for the conditions and procedure for acquiring scientific degrees and for occupying academic positions at IOCCP-BAS. Assoc. Prof. Trendafilova has over 25 years of experience in the specialty at IOCCP-BAS. In 1997, the High Attestation Committee awarded her the educational and scientific degree of "doctor", after which she held successively the positions of senior research associate (1996-2004), senior research assistant (2004-2011) and Associate Professor (since 2011). She is a member of the Union of Chemists in Bulgaria, the Bulgarian Phytochemical Society and the Association for Medicinal and Aromatic Plants of Southeast European Countries (AMAPSEEC). She is a Winner of the Acad. D. Ivanov "for achievements in the field of chemistry of natural organic products 1995/1996.

### 2. General characteristics of the applicant's activities

Assoc. Prof. Trendafilova is a co-author of 80 scientific papers, 51 of which are outside competitions for acquisition of the scientific and educational degree "doctor" and the academic position "associate professor". Assoc. Prof. Trendafilova participates in this competition with 33 scientific reports, 13 of which under indicator C and 20 under indicator D. Articles on Indicator C, habilitation - scientific publications in journals that have been referenced and indexed in

world-renowned scientific information databases in which the candidate has been identified as corresponding author, include 3 articles in journals with rank Q1, 8 in journals with rank Q2 and 2 in journals with rank Q3. The 20 scientific publications presented outside the habilitation work, Indicator D, include 5 articles in journals with rank Q1, 4 in journals with rank Q2, 7 in journals with rank Q3, and 4 in journals with rank Q4. The candidate's scientific publications have been cited more than 350 times in the literature, including 250 citations of the articles with which she has participated in this competition. According to the Scopus and Web of Science databases, Assoc. Prof. Trendafilova owns the Hirsch factor of 11.

Results of the research of Assoc. Prof. Trendafilova have been reported 63 times in national and international scientific forums, of which the candidate has presented 3 oral reports at international conferences.

Prof. Trendafilova actively participates in work on scientific projects. After her election as associate professor, she is a participant in 12 national and 9 international projects and leader of 2 national and 2 international projects.

Assoc. Prof. Trendafilova is a scientific consultant to one successfully defended doctoral student and supervisor of 4 graduates and 2 students in the frame of "Student Practices".

The extended habilitation report is written concisely and clearly with precisely differentiated references to the articles with which the candidate participates in the competition, from those outside it, as well as to the articles on the separate indicators C and D. The scientific investigations of Assoc. Prof. Trendafilova are mainly in the area of sesquiterpene-lactone chemistry and research of secondary metabolites in plants and can be generally divided in four main directions:

- ✓ Phytochemical investigations of medicinal plants and/or unexplored taxa so far to obtain new data on the structural diversity of biologically active components, chemosystematics, biological activity and mechanism of action on various biological objects;
- ✓ Preparation of essential oils from aromatic and medicinal plants, gas chromatography and mass spectral analysis of essential oils with a view to identifying their main components and searching for chemotaxonomic and other relations;
- ✓ Use of modern techniques for the extraction of biologically active compounds from medicinal plants;
- ✓ Quantitative determination of biologically active compounds in medicinal plants.

As a result of the research of Assoc. Prof. Trendafilova, who are in a modern interdisciplinary field of phytochemistry, a number of important scientific results have been achieved. The alkaloid and essential oil composition of various medicinal and aromatic plant species was investigated. A number of unknown natural compounds have been isolated and

characterized, as well as those that have not yet been detected in the corresponding species. The conditions for the extraction of biologically active substances from a number of medicinal plants have been optimized and their composition quantified.

### **3. Critical remarks and suggestions**

I have some small critical notes of stylistic character. It would be useful the participation in scientific events to be given in a more detailed manner with an indication of the type of event and the name of the scientist reporting the results. An odd impression is the spelling of 8 decimal places, especially when dealing with a single value. However, these small notes do not in any way affect the overall excellent impression of the scientific output presented.

### **CONCLUSION**

It is undisputed for me that Assoc. Prof. Dr. Antoaneta Trendafilova is a productive researcher with established qualities and a promising career. Analyzing the candidate's scientific achievements, their response in the world literature, the relevance and perspective of the topics in her research activity, her active participation in research projects and her personal qualities and skills, I think that they significantly exceed the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), the Regulations for the application of the ADASRB, the Regulations for the conditions and the procedure for acquiring academic degrees and for taking Academic positions at BAS and the Regulations for the conditions and procedure for acquiring scientific degrees and for occupying academic positions at IOCCP-BAS, and I strongly recommend that the Scientific Board of IOCCP-BAS award to

#### **Associate Professor Dr. Antoaneta Borisova Trendafilova-Savkova**

the academic position of "Professor" in the field of higher education 4. Natural sciences, mathematics and informatics, professional field 4.2. Chemical Sciences, scientific specialty "Bioorganic Chemistry, Chemistry of Natural and Physiologically Active Compounds".

Sofia, September 09, 2019

Prepared the appraisal

(Prof. Dr Vanya Kurteva)